

Evaluation of the Air Quality Monitor's Performance on the International Space Station

Thomas Limero¹, Eric Reese¹, Ken Ballard¹, and Tamara Durham²

¹Wyle Integrated Science and Engineering

²NASA/Johnson Space Center

The Air Quality Monitor (AQM) was flown to the International Space Station (ISS) as an experiment to evaluate its potential to replace the aging Volatile Organic Analyzer (VOA), which ceased operations in August 2009. The AQM (Figure 1) is a small gas chromatography/differential mobility spectrometer (GC/DMS) manufactured by Sionex. Data was presented at last year's ISIMS conference that detailed the preparation of the AQM for flight, including instrument calibration. Furthermore, initial AQM data was compared to VOA results from simultaneous runs of the two instruments. Although comparison with VOA data provided a measure of confidence in the AQM performance, it is the comparison with results from simultaneously acquired air samples (grab sample containers-GSCs) that will define the success (or failure) of the AQM performance.

This paper will update the progress in the AQM investigation by comparing AQM data to results from the analyses of GSC samples, returned from ISS. Additionally, a couple of example will illustrate the AQM's ability to detect disruptions in the spacecraft's air quality. Discussion will also focus upon a few unexpected issues that have arisen and how these will be addressed in the final operational unit now being built.

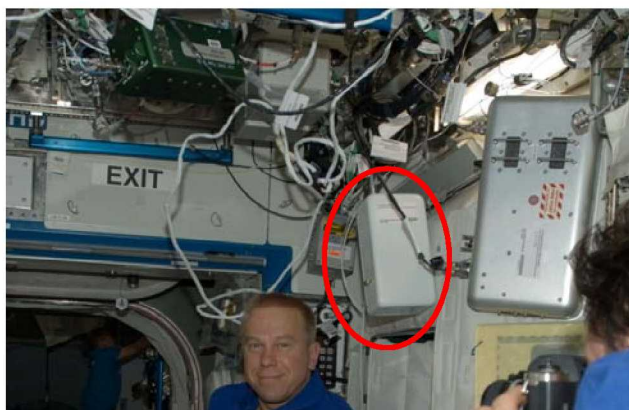


Figure 1: AQM (circled) in ISS Node 2